



## Aerojet Rocketdyne Wraps Up Historic Year

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- *Company's propulsion enabled significant firsts for nation's aerospace and defense industry*
- *Innovation in additive manufacturing enables cost savings & design flexibility*
- *Focus on affordability and efficiency have helped to drive [strong top line growth](#) and margin improvement in the first 9 months of 2018 (4th quarter results not yet available)*

EL SEGUNDO, Calif., Dec. 20, 2018 (GLOBE NEWSWIRE) -- From 100% mission success on Delta and Atlas launches, to propelling spacecraft to the Sun and Mars, and modernizing our nation's defense, Aerojet Rocketdyne continued to make history. Here's a look back at some key successes from the past year.

### Preparing for the Next Era of Space Flight, Pushing the Boundaries of Space

- Successfully fired the **AR-22 rocket engine** an [unprecedented 10 times in 10 days](#), demonstrating the feasibility of a reusable spaceplane capable of high-tempo flight operations.
- [Powered every phase](#) of NASA's **Mars InSight** lander's journey to the red planet – launch, cruise, entry and landing. All eight successful landings on Mars have relied on Aerojet Rocketdyne propulsion.
- NASA's **Parker Solar Probe**, [launched](#) with our RS-68A and RL10 engines, is using Aerojet Rocketdyne's propulsion system to enable the probe's 7-year journey to within 6.2 million kilometers of the Sun's surface -- eight times closer than the previous record.
- Aerojet Rocketdyne provided [all 28 rocket engines](#) on **OSIRIS-REx**, the asteroid sample-return probe that recently arrived at Asteroid Bennu. In addition to powering the launch vehicle's main and second stages, Aerojet Rocketdyne is providing critical in-space propulsion. Our thrusters enabled braking maneuvers to support the arrival, and will maneuver the spacecraft during its year of close-proximity science operations, and enable its journey back to Earth's orbit.
- Announced contracts in [April](#) and [May](#) that assure the **RL10** cryogenic upper stage engine, variants of which have been operating for more than 50 years, will continue flying on two new rockets intended for U.S. government and commercial customers. Future versions will integrate additively manufactured components to enhance affordability and maintain reliability.
- Continued to make progress in moving toward first launch of NASA's Space Launch System, as well as building an inventory of **RS-25 main engine** components including new, upgraded [flight controllers](#) for the first four flights of the heavy-lift rocket. Among other [modernized RS-25 components](#) being qualified is a [main combustion chamber](#) fabricated using "hot isostatic pressing," that improves reliability while reducing costs, and an additively manufactured [Pogo](#) accumulator assembly. In addition, we completed initial qualification testing of the jettison motors and reaction control system for the Orion spacecraft.
- Delivered [12 control thrusters](#) for Boeing's **Starliner crew module**, which is designed to transport astronauts to low-Earth orbit destinations. Aerojet Rocketdyne-supplied MR-104J thrusters, each delivering 100 pounds of thrust, will be used to orient the spacecraft during atmospheric re-entry.

### Supporting our Warfighters, Providing for a Modern Defense

- Successfully tested a new [dual-mode ramjet/scramjet engine](#), that when combined with a gas turbine engine as part of a turbine-based combined cycle propulsion system, may provide the capability to propel a vehicle from a standstill into the **hypersonic flight** regime of Mach 5 or higher and back again.
- Completed two [hot-fire tests](#) of an **advanced tactical booster** conditioned to mimic extreme cold- and hot-soak conditions for air-launch application. The solid rocket motors, designed to accelerate a vehicle during its initial phase of flight, were tested at extreme temperatures to verify they will perform as expected across the full range of anticipated operational

conditions.

- Aerojet Rocketdyne was awarded a Phase I [contract](#) to develop a **prototype torpedo propulsion system**. The Torpedo Advanced Propulsion System program's goal is to improve the engine efficiency of the U.S. Navy's MK48 Heavyweight Torpedo.
- Announced [\\$50 million expansion plan](#) for our **Solid Rocket Motor Center of Excellence** in Camden, Arkansas. Infrastructure improvements and additional hiring will enable an increase in the volume of solid rocket motors produced at the site for tactical and missile defense systems, and provide the capability to build large solid rocket motors in Camden for our nation's strategic defense requirements.
- Supported multiple flight tests of Raytheon's **Standard Missile-3 Block IIA guided missile** system, designed to further prove the effectiveness of the larger and faster SM-3 Block IIA variant in intercepting a medium range ballistic missile. Two recent tests conducted in [October](#) and [December](#) within 60 days of each other underscored the reliability of our booster and Throttling Divert and Attitude Control System.
- Successfully completed [hot fire altitude testing](#) of our **Divert and Attitude Control System** Center Manifold for the Missile Defense Agency's Redesigned Kill Vehicle. The test validated Aerojet Rocketdyne's unique technology and marked a major milestone.
- An **upgraded insensitive explosive** was [successfully tested](#) to support the Mk-82 500-lb. and Mk-83 1,000-lb. general purpose bombs. The explosive provides the same lethality as the current PBXN-109 explosive, but has characteristics that make it less susceptible to unintended detonation, making both warheads much safer to store and handle.

For more on the exciting space and defense missions Aerojet Rocketdyne has supported this year, and to follow along while we make history in 2019, see [www.rocket.com](http://www.rocket.com).

**About Aerojet Rocketdyne:** Aerojet Rocketdyne, a subsidiary of Aerojet Rocketdyne Holdings, Inc. (NYSE:AJRD), is a world-recognized aerospace and defense leader that provides propulsion systems and energetics to the space, missile defense and strategic systems, and tactical systems areas, in support of domestic and international customers. For more information, visit [www.Rocket.com](http://www.Rocket.com) and [www.AerojetRocketdyne.com](http://www.AerojetRocketdyne.com). Follow Aerojet Rocketdyne and CEO Eileen Drake on Twitter at [@AerojetRdyne](#) and [@DrakeEileen](#).

#### **Cautionary Note Regarding Forward-Looking Statements**

This press release contains "forward-looking statements" as that term is defined in the U.S. Private Securities Litigation Reform Act of 1995. No forward-looking statement can be guaranteed, and actual results or outcomes may differ materially from those projected depending on a number of risks, uncertainties and other factors. All statements contained herein that are not clearly historical in nature are forward-looking and the words "will," "anticipate," "believe," "expect," "estimate," "plan," and similar expressions are generally intended to identify forward-looking statements. Forward-looking statements in this press release should be evaluated together with the many factors that affect the company's business as described in more detail in Aerojet Rocketdyne Holdings, Inc.'s annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K filed with the U.S. Securities and Exchange Commission. Any forward-looking statement made by us in this press release is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether as a result of new information, future developments or otherwise.

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